Described from 43 ♂♂ and 3 ♀♀ as follows: The type 1 ♂ Brownsville, Tex. (H. S. Barber), allotype 1 ♀ Brownsville, Tex. (C. H. Townsend), paratypes 2 ♂♂ and 2 ♀♀ Victoria, Tex. (J. D. Mitchell), 1 ♂ New Braunfels, Tex. (Chas. Schaeffer), 7 ♂♂ Brownsville, Tex. (Chas. Schaeffer), 4 ♂♂ Brownsville Tex. (Townsend), 2 ♂♂ Brownsville, Tex. (H. S. Barber), 1 ♂ Columbus, Tex. (E. A. Schwarz), 4 ♂♂ Refugio, Tex. (coll. unknown), 1 ♂ San Diego, Tex. (E. A. Schwarz), 2 ♂♂ Dallas, Tex. (J. Bowl), 1 ♂ Laredo, Tex. (Hubbard & Schwarz), 1 ♂ Laredo, Tex. (A. W. Morrill), 1 ♂ San Antonio, Tex. (Hubard & Schwarz), 3 ♂♂ Texas (John B. Smith), 5 ♂♂ Texas (C. V. Riley), 6 ♂♂ Texas (coll. unknown), 1 ♂ Texas (Chas. Schaeffer), 1 ♂ Arizona (Chas. Schaeffer).

Type locality:—Brownsville, Tex.

Type:—Cat. No. 20461, U. S. N. M.

Explanation of Plates.

Plate I. *Perissarthron trapezium. a*, Anterior aspect of head of ♂; *b*, right antenna of ♂; *c*, right coxa of ♂; *d*, posterior tarsal claws of ♂; *e*, aedeagus; *f*, joint between 11th and 12th antennal segments of ♂; *g*, prothorax and head of ♀; *h*, adult ♂.

Plate II. Male genitalia of *Pyrophorus. a*, dorsum, *b*, ventron of *Pyrophorus physoderus; c*, dorsum, *d*, ventron, *e*, lateral aspect of *Pyrophorus atlanticus; f*, dorsum of *P. texanus, g*, dorsum of *P. arizonicus.*

Plate III. Adult *Pyrophorus. P. texanus; a*, male, *b*, female; *P. physoderus, c*, male; *P. atlanticus, d*, male, *e*, female; *P. arizonicus, f*, male, *g*, female.

NOTES AND DESCRIPTIONS OF SOME ORCHID WEEVILS.

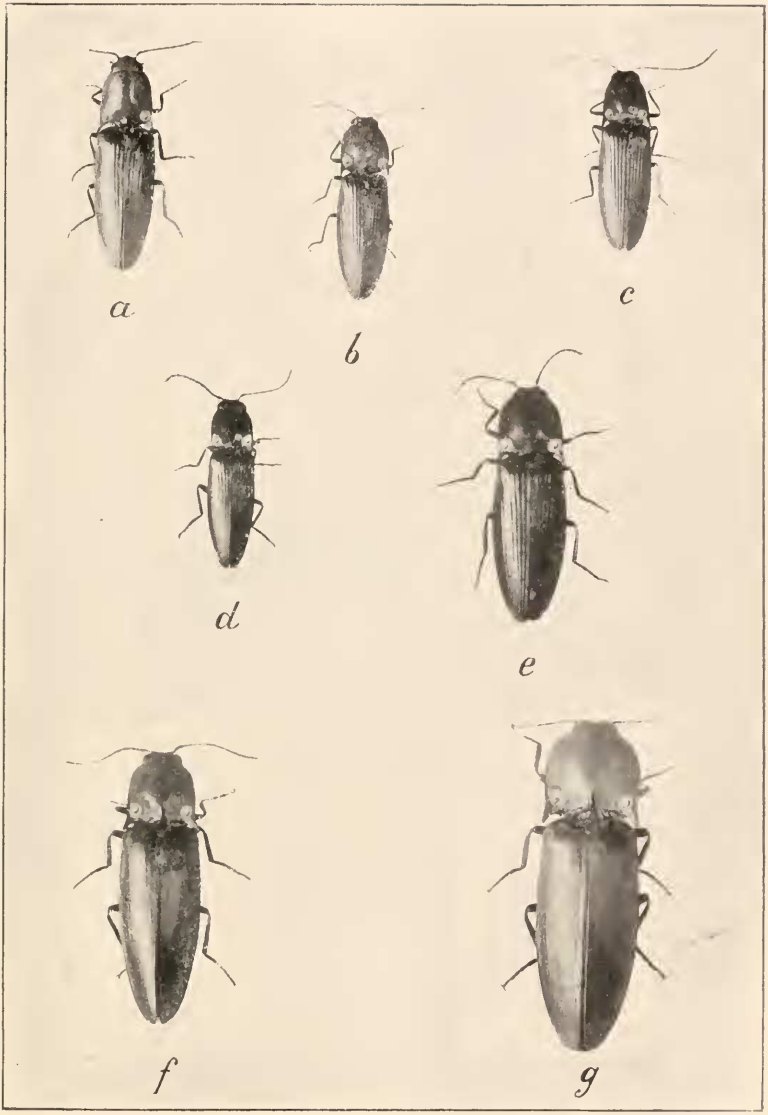
By H. S. Barber,

Bureau of Entomology.

The several notes on Orchid injuring insects that have appeared recently contain references to species not before reported as such and from the study of certain species in the weevil genera *Cholus*, *Acythopeus*, and *Eucactophagus*, it appears to the writer from the specimens and literature before him that certain corrections in the application of the names are necessary. Seven species are treated in this paper three of which are described as new.

Cholus Germar 1824.

Mr. Champion's description in the September number of the Entomologist's Monthly Magazine, of the large black and white orchid weevil, *Cholus cattleyae*, found by Mr. H. B. Weiss in or-


a
b
c
d
e
f
g

chid houses in New Jersey, came to my notice too late to withdraw my own description of the same weevil from publication in the last volume of these Proceedings and was my first intimation that the species was attracting attention elsewhere.

Mr. Weiss informs me that 17 specimens were found, usually singly on various species of *Cattleya* especially on *C. gigas* during irregular visits to an orchid house at Secaucus, N. J., between May and August of 1916. The adults were quite conspicuous, crawling and feeding on the leaves and bulbs and doing much damage. Their chief injury appears as before stated to be done by the larva developing in the pseudobulbs.

Mr. Weiss has helped me to reassemble all of his specimens except the second one he captured which he sent to Mr. Champion and which became the type of *cattleyae* being most likely now deposited in the British Museum. Five of these sixteen specimens are *Cholus cattleyae* Champ. but the other eleven examples are not that species but are *C. forbesii* Pascoe, this determination having been corroborated from photographs sent by me to Mr. Champion.

Mr. S. B. Fracker of Wisconsin writes that adults have been taken in the Milwaukee greenhouses in January, March, June, August and September and that larvae were found in all stages during this time, pupation occupying at least two but not more than four weeks and that larvae lived under the abnormal conditions of his office for at least four months without pupating. Two partly grown and two apparently full fed larvae were received alive from Mr. Fracker on September 14; the two smaller ones were here introduced into fresh, artificial holes in the healthy leaf bulbs of a small *Cattleya* where they apparently made themselves at home and excavated the interior of the bulb, but when the latter were cut open in November both larvae were found to be dead. One of the larger larvae was ready to pupate when received but was unable to cast the larval skin and was preserved September 25; the other took some weeks to prepare for pupation which it accomplished about November 1 and finally issued as an adult November 20, after which it took nearly a week to harden. It lived about two months upon a *Cattleya* plant which was finally killed by the feeding of the weevil.

Mr. Sanders recently informed me that ten or twelve specimens were preserved from the Milwaukee infestation, but of these the writer has had access to only seven. Thus including the single specimen found in Washington, D. C., in 1913, and the one reared by the writer, these notes are based upon a series of twenty-five specimens which have been assembled through courteous loans from the collections cited below, and the examination of this series is of considerable interest since the three previous de-

scriptions of the two species distinguished in the series, were based upon a total of five examples.

The idea is forced upon me that the occurrence of the two species in one orchid house in New Jersey accompanied as it is by great variation in size and in prothoracic markings in *cattleyae* (these markings always being more or less complete elements of the design which is constant in *forbesi*) and the occurrence of but one of the species (*cattleyae*) practically without variation in the Milwaukee orchid house indicate the possibility of a more or less recent hybridization under the artificial conditions, which might not be possible in their native habitats, and which may have superimposed the pronotal vestiture of *forbesi* to a varying degree upon the supposedly more dominant form and sculpture of *cattleyae*. Until some breeder can make the experiment this supposition should not receive more than casual attention but the probability of such occurrences is constantly confronting us. The native habitat of neither of the two species is definitely known.

Cholus cattleyae Champion (September, 1916)[1]

In this species of which *C. cattleyarum* m. (November, 1916) is undoubtedly a synonym, the variation in vestiture consists in the appearance on an otherwise entirely black prothorax, of various of the elements of the white squamose areas so conspicuous in the following species. Of the fourteen examples before me eight specimens are from the orchid house at Milwaukee, and six of these as well as the specimen found by Mr. Heidemann in 1913, have no pronotal markings; the Milwaukee specimen reared by the writer displays a pair of postocular squamose patches, one from the New Jersey orchid house and one from that in Milwaukee have only a small prescutellar spot as described by Champion; one specimen (in Dickerson collection, received from Weiss) displays the prescutellar spot, the pair of postocular spots and also a pair of small discal squamose areas; the prescutellar spot and only one of each of the discal and postocular spots are present in another specimen in the Weiss collection, and only the prescutellar and one of the postocular spots in the specimen Mr. Weiss gave to Mr. Leng; finally a specimen received by the American Museum of Natural History (the first one found by Mr. Weiss and the one which he illustrated, Entomological News) which has two pairs of squamose areas in addition to those just mentioned, one before the humerus, and another above the coxae, all being connected with the prosternal squa-

[1] See Proc. Ent. Soc. Wash., XVIII, Plate XIII, facing p. 178.

mose band, as shown in the figure (Pl. 4, fig. 2). The elytral vestiture is more constant, but in the Washington specimen the white areas although maintaining their position are so reduced in size that the intervening black lines of the striae become obvious and the specimen has a much more tessellate appearance. Six of the Milwaukee specimens are females and measure 10.75 mm. to 12 mm. while the single male measures 10.25 mm. in length (excl. rostr.).. The five Weiss specimens measure 8.5 mm. (♂ and ♀) 9.5 mm. (♂), and 10.5 mm. (♂ and ♀). The specimens belong in the following cabinets:

U. S. National Museum,—4 specimens (type and paratype of *cattleyarum* Bar. and two other specimens from Milwaukee).

Wisconsin Department of Agriculture,—4 specimens (from Milwaukee).

University of Wisconsin,—1 specimen (from Milwaukee).

American Museum of Natural History,—1 specimen (from Weiss).

Mr. Chas. Leng,—1 specimen (from Weiss).

Mr. E. L. Dickerson,—1 specimen (from Weiss).

Mr. H. B. Weiss,—2 specimens.

Cholus forbesii Pascoe 1877. (Pl. 4, figs. *1, 1A, 1B.*)

The specimens in our series are narrower and less roughly sculptured than *cattleyae,* with the tibial and tarsal vestiture composed of intermixed black and white hairs instead of yellow ones. There are no white scales on the mesopleural plates and the specimens display a different series of elytral and prothoracic squamose markings which vary slightly but in general leave, large, black unclothed areas as follows:—A large elongate discal black spot occupying nearly half the length of the suture, and often with lateral extensions near its posterior end; a large three-lobed, discal black spot on the pronotum which encroaches slightly on the elytral base on each side of scutellum and is usually narrowly produced anteriorly to join the black head;[1] a pair of post-humeral round spots of about the same size as one of the lobes of the pronotal macula; a pair of subapical lateral spots apparently the same size in the dorsal aspect but produced downward and forward to include the posterior coxae; and finally the

[1] Mr. Champion writes that in the type the white scales of the pronotum are more extended partly enclosing three bare patches on the disc, and from a rough diagram accompanying this statement it appears that the prescutellar squamose patch is produced forward and joins with inward extensions of the transverse squamous band at basal third of pronotum, leaving the anterior nude area triangular and the basal pair quadrate.

short common, apical elytral black spot. In addition to these there is a small lateral, prehumeral spot on the thorax, usually encroaching a little onto the base of the elytra and sometimes connected with the discal spot; in front of it are two small lateral spots of which the lower is very small but present in all specimens. The metasternum is clothed with white scales as in *cattleyae* and the abdominal sternites are similarly clothed, except that the patches on the second segment fuse into a continuous transverse band.

The eleven specimens (5 ♂♂, 6 ♀♀) before the writer (and six specimens of *cattleyae*) were all taken by Mr. Weiss in an orchid house at Secaucus, N. J,. during the past summer, and have generously been loaned (except of course the type in the British Museum) from the following collections:

Mr. H. B. Weiss,—7 specimens labelled "Bergen Co., N. J.," two of which are retained for the National Collection, by the kind permission of the owner.

Mr. E. L. Dickerson,—2 examples labelled "Secaucus, N. J., VIII."

Mr. A. C. Frost,—1 example.

American Museum of Natural History,—1 example.

The notices of these orchid *Choli* known to me are as follows:

1877 Pascoe (Proc. Ent. Soc., Lond., 1876, p. XXX, named and gave short diagnosis of *Cholus forbesii* from a specimen found among some supposedly Ecuadorian orchids at Highgate, England.

1903 Champion (Biol. Centr.-Amer. Coleop., vol. IV, pt. 4, p. 306, pl. XVI, figures 12 and 13) describes and figures two new species, *C. nigronotatus* from Nicaragua and Panama (two specimens), and *C. nigromaculatus* from Panama (a pair) the first of which he compares with Pascoe's species.

1906 Champion (l.c., p. 724—footnote) corrects an error in above.

1916 Champion (Ent. Mo. Mag. (3), vol. 2, Sept., p. 201) describes a new species. *C. cattleyae* from a specimen found by Mr. Weiss breeding in bulbs of *Cattleya gigas* in a New Jersey greenhouse. A photo of the same species from Milwaukee, Wis., is cited and the three preceding species are mentioned.

1916 Barber (Proc. Ent. Soc. Wash., vol. 18, p. 177, pl. 13) figures and describes the Milwaukee specimen as *C. cattleyarum*.

1916 Fracker (Wisconsin Horticulture, vol. 7, Oct., p. 27) records the occurrence of *Cholus cattleyae* (without using a name) in orchid houses in Milwaukee.

1917 Weiss (Ent. News, vol. 28, p. 28, pl. V, fig. 2) describes the injury in greenhouses by *C. cattleyae* and *C. forbesii* and figures the specimen of the former species now preserved in the American Museum of Natural History.

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